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ABSTRACT

A study was designed to develop a comprehensive approach to observing teaching in early childhood settings. A systematic method of observing developmentally appropriate and inappropriate behaviors was sought. The result was a comprehensive model based on Gordon's (1968) conceptualization of instruction. The model proposes that presage variables, such as pupil entering, teacher entering, and demographic characteristics, be investigated with a teacher interview sheet and a teacher belief inventory. Process variables, including teacher and pupil behavior in the setting, organization, and content factors, be studied by means of observations of situated teacher and pupil behavior and other information about the classroom environment; and that data on product variables, such as short- and long-range cognitive and affective effects on students, be gathered through pre-conference contact with teachers. Five categories were included in the systematic observation component of the model: teacher management strategies, children's learning strategies, types of verbal interactions, teacher communication strategies, and affective guidance. To establish the reliability of the instrument, "Dimensions of Developmentally Appropriate Teaching Techniques," two trained graduate students observed tapes and coded behaviors of four teachers and their students. The study instruments are appended. (RH)

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# Toward an Ecological Approach of Observing in Early Childhood Settings

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## Abstract

The purpose of the present study was to design a comprehensive approach of observing teaching in early childhood settings. An instrument which would include an early childhood systematic observation component of developmentally appropriate teaching techniques was designed. The instrument entitled "Dimensions of Developmentally Appropriate Teaching Techniques" includes five categories: Teacher Management Strategies; Children's Learning Strategies; Types of Verbal Interactions; Teacher Communication Strategies; and Affective Guidance.

Seven kindergarten teachers were videotaped in order to obtain inter and intra rater reliability. To examine presage, process, and goal or product variables the researchers suggest that the following additional information be obtained when observing in early childhood settings: a pre-conference, a teacher interview sheet, an outline for viewing the classroom environment, a copy of the lesson observed, and a Teacher Belief Inventory. This model is in its beginning stages but appears to be a promising approach for observing in early childhood settings.

## Background

Early childhood educators, researchers, and organizations are advocating that individuals who educate and care for our young children incorporate developmentally appropriate teaching techniques (Elkind, 1986, IRA, 1985; NAEYC, 1984 1986; Piaget, 1952, SACUS, 1984). The current knowledge of child development and learning indicates that teachers of young children need to incorporate concrete, play-oriented approaches in the classroom. Individuals responsible for observing and evaluating early childhood educators may be at a loss, however, when current systematic observation measures are not congruent with this body of literature.

Measuring early childhood teacher effectiveness has created many problems in the past since it has never been quite clear as to what behaviors are effective in working with young children. Previous measures of teacher effectiveness have focused on teacher interactions in classrooms where children spend most of their time sitting in chairs or in large group lessons, while the teacher directs the classroom (Lay-Dopyera, & Dopyera, 1986; Fagot, 1973, Seefeldt 1986). Yet research has demonstrated that children in early childhood classrooms should spend most of their time engaged in concrete experiences (SACUS, 1986; Goffin & Toll, 1985; Peterson & Felton-Collins, 1986; NAEYC, 1986). The National Association for the Education of Young Children's (1986) publication identifies teacher behaviors that are both developmentally appropriate and inappropriate for teachers of young children.

The purpose of the present investigation was to design a comprehensive approach of observing teaching in early childhood settings. A systematic method of observing developmentally appropriate and inappropriate behaviors was our goal. Since the art of teaching can range within a continuum of behaviors it was decided to explore the possibility of "dimensions" of behaviors.

Gordon and Jester (1973) called for a comprehensive model of observing teaching in early childhood settings. These authors noted that "systematic observation of the teaching-learning situation in the preschool years is in its infancy" (p. 214). The model of instruction which Gordon (1968) conceptualized would describe the relationships among a) presage variables; pupil entering characteristics, teaching entering characteristic, demographic characteristics, b) process variables; teacher and pupil behavior in the setting, organization and content factors, and c) goal or product variables; immediate and long-range effects of pupils in both cognitive and affective domain.

The present investigation has designed a comprehensive model by incorporating a) presage variables; teacher interview sheet, Teacher Belief inventory, b) process variables; observations of teacher-pupil behavior in the setting, information regarding the classroom environment, and c) goal or product variables; information obtained via the pre-conference with the teacher. In order to examine outcomes researchers may add product variables which are of interest to their particular design. The ultimate goal is to increase our knowledge of the teaching-learning process in early childhood settings.

## Methodology

### Instrument Development

Medley, Coker, Soar (1984) suggest that strategies aimed at defining dimensions of performance should be based on a combination of approaches. The sources examined for this study were three fold: a) research literature dealing with early childhood teacher behaviors (Bradbard & Endsley, 1982; Bredekamp, 1986; SACUS, 1986; Felton & Collins, 1986; Forman & Kushchner, 1983; Feeney & Chun, 1985; Goffin & Tull, 1985; Gordon & Jester, 1973; Hildebrand, 1980; Kritchevsky & Prescott, 1969; Myers & Maurer; Phyfe & Perkins, 1981; Rogers, Waller, & Perrin, 1987; Stone 1987; Torrance 1970; Williams & Kamii, 1986); b) a list

of behaviors designed from the NAEYC, 1986 publication entitled; "Developmentally Appropriate Practice," which were refined and defined according to Hawkins' (Hartman, 1982) suggestions; and c) the supervisory and educational experiences of the investigators.

The early childhood literature which was most helpful in examining developmentally appropriate/inappropriate behaviors in early childhood settings includes:

Children's Learning Strategies

1. Children should be exposed to concrete experiences, the use of their senses and allowed to interact with people and objects. Active exploration is important for an optimal learning environment. (Bradbard & Endsley, 1982; SACUS, 1986; Goffin & Tull, 1985; NAEYC, 1986; Piaget, 1957; Stone, 1987; Willert & Kamii, 1985).
2. It is important to encourage the child's point of view and to use the child's own experiences. Meaningful experiences are relevant to the child's life. (Williams & Kamii, 1986; Kamii, 1982; NAEYC, 1986; Peterson & Felton-Collins, 1986).
3. Children should be afforded opportunities to make choices (Williams & Kamii, 1986; SACUS, 1986; Myers & Mauer, 1987, NAEYC, 1986).

Teacher Management Strategies

1. Background knowledge of child development is valuable for teachers. (SACUS, 1986; Forman & Kuschner, 1983).
2. Teachers need to be able to assess children's needs, interests, and skill levels. Planning flexible and realistic activities is critical as is the ability to accept individual differences and growth patterns. (SACUS, 1986; Myers & Maurer, 1987; Peterson & Felton-Collins, 1986; NAEYC, 1986; Kamii, 1982; Forman & Kuschner, 1983; Bradbard & Endsley, 1982).

3. Teachers should periodically change materials, equipment, and activities/novel objects aimed at preparing an environment that is stimulating and challenging. (SACUS, 1986; Bradbard & Endsley, 1982; NAEYC, 1986).
4. A need for listening to children, extending their language about feelings is evident. It is essential to promote self image and encourage children to be independent and self-reliant. (NAEYC, 1986; SACUS, 1986).
5. The teacher acts as a facilitator, not a dispenser of knowledge. Some knowledge must be experienced. Teachers can guide, support, maintain, stimulate, and expand children's learning. An environment which is free from adult imposed standards is child-centered. (SACUS, 1986; Goffin & Tull, 1985; Peterson & Felton-Collins, 1986; NAEYC, 1986).
6. Teachers can model appropriate behavior. (SACUS, 1986; Goffin & Tull, 1985; Bradbard & Endsley, 1982).
7. Teachers can accept play as children's work. (SACUS, 1986; Goffin & Tull, 1985; Bradbard & Endsley, 1982).
8. Observing children in various activities can lead to understanding of how children think and their level of understanding. (Goffin & Tull, 1985).
9. The daily schedule should reflect a balance of rest and active movement for indoor/outdoor play. (NAEYC, 1986).
10. It is essential to set clear limits. (NAEYC, 1986).
11. Teachers can value childrens' mistakes as important learning experiences. (NAEYC, 1986).

Communication Strategies

1. Children should be given enough time to respond to questions and express their thinking. Questions posed by teachers should relate to children's activities. (Goffin & Tull, 1985).

2. Question asking techniques can produce cognitive disequilibrium. (Peterson & Felton-Collins, 1986).
3. The answers to children's questions should be informative. (Bradbard & Endsley, 1982).
4. Teachers who ask questions, offer suggestions, and add more complex materials can stimulate children's thinking and afford opportunities for children to communicate.
5. Good teachers ask "information-seeking questions" - no expectations like in "known answer questions" - those requiring one or two word replies. "known answer questions" may inhibit rather than promote language. 72% of elementary school teachers ask these questions.
   "information seeking question"promote curiosity. Give the children the opportunity to talk and have some control over the content of conversation. Allow children to initiate and direct conversation. (Rogers, Waller, & Perrin, 1987).
6. Group size - as the group size increases, the number of questions generated by the group decreases. (Bradbard & Endsley, 1982).
7. Torrance (1970) found that small groups of children six years of age ask more questions and more information seeking questions when they are allowed to manipulate objects than when only shown objects and asked to watch them being demonstrated. Teachers can stimulate creative thinking by allowing children to manipulate objects.

Indirect/Direct Guidance

Developmentally appropriate programs provide both indirect and direct guidance. (Hildebrand, 1980).

1. Indirect guidance - management of space, equipment and materials:
   a. adult/child ratio -large groups can over stimulate and fatigue.

b. scheduling meets pace of children.

c. space arranged as cue to appropriate behavior. Activities are arranged so that they invite participation, sufficient play spaces, and privacy.

d. Curriculum is rich, varied, and appropriate to ages and experiences of the child.

2. Direct guidance

a. Physical. Demonstrating, leading, restraining and removing.

b. Verbal guidance.

1. careful listening
2. eye contact
3. positive directions. Avoid negatives
5. Make choices available.
6. Logical reasoning.
7. State limits or rules clearly. Be positive.
8. Resolve conflicts.
9. Avoid competition.
10. Praise.

c. Affective guidance.

1. Positive feedback.
2. Label feelings.
3. Observe.
4. Attention.

Instrument Design

Five categories were designed for the systematic observation component. The categories include a range of teacher behaviors and student participation. The term "dimensions" of behavior implies both passive and active approaches of teaching.

Table I includes a copy of the instrument entitled: Dimensions of Developmentally Appropriate Teaching Techniques.

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Insert Table I

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The five dimensions will be referred to as Teacher Management Strategies (TMS): Children's Learning Strategies (CLS); Types of Verbal Interactions (TVI); Teacher Communication Strategies (TCS); and Affective Guidance (AG). The goal was to establish observable behaviors which could be timed and coded on simple graph paper in the early childhood setting. For the TMS category, for example, the coder will observe the teacher for five minutes and place a hatchmark every time a behavior is observed. Additional five minute time slots are allocated for each separate category so that 25 minutes of actual observable behaviors can be coded. The number of tally marks coded for each subcategory are summed, e.g., TMS #1. The coders are also asked to place an asterisk next to the most salient TMS and CLS behaviors at the end of the observation.

Table I defines the behaviors which will guide the coders, while a separate sheet of graph paper is provided with the categories for the actual observation (Appendix I). The category entitled Teacher Communication Strategies (TMS) was adapted from Weikart's (1987) staff development approaches by the third author.

Since teaching strategies are sometimes closely tied to the teacher's child development orientation (Brophy & Evertson, 1976; Logue et al, 1986; McNairy, 1985; Schon, 1983; Saracho, 1987) which in turn may influence the display of developmentally appropriate behaviors in the classroom (Lay-Dopyera & Dopyera, 1986) questionnaires and interview techniques are suggested. The following information should be obtained from the teacher: (a) the Teacher Belief Inventory (Peters, Neisworth, & Yawkey, 1985, pp. 58-61), (b) a non-threatening face-to-face preconference strategy eliciting the teachers' goals, (c) copies of the lesson plans, and (d) questions regarding teacher's background information. (Appendix II presents sample questions suggested by the third author.)

In order to broaden the scope of the assessment and the ecological perspective, it is recommended that the environment/physical space be assessed for its developmental appropriateness or inappropriateness. The arrangement of space and materials is an important component in the assessment of a developmentally appropriate environment (SACUS, 1986; Forman & Kuschner, 1983; Kamii, 1982; Kritchevsky & Prescott, 1969; Myers & Maurer, 1987; NAEYC, 1986; Emmer, Evertson & Anderson, 1979; Peterson & Felton-Collins, 1986) since it determines whether children will move around freely in the classroom or remain restricted to a desk and chair. Kritchevsky & Prescott (1969) note that physical space can be a predictor of program quality since the arrangement of physical space demonstrates a sensitivity to children's needs. (Appendix III presents sample questions suggested by the second author).

## ANALYSIS

Seven Kindergarten teachers were videotaped twice for one half hour during "language arts" lessons. Reliability was established using data collected by two graduate students who received approximately 6 hours of training with practice video-taped observations. The coders selected were verbal, bright, and highly motivated as per Reid's (Hartman, 1982), suggestion. The coders observed four chosen teachers with specific taped portions chosen by one of the researchers indicating varying teaching behaviors and student participation during the "language arts" lessons. Each of the teachers was observed twice by the coders who allocated five minutes for each category.

Inter-rater reliability obtained includes: TMS = .92; CLS = .87; TVI = .86; TCS = .72; and AG = .92. The intra-rater reliability for coder #1 includes: TMS = .94; CLS = .87; TVI = .86; TCS - .92; AG = .83. Intra-rater reliability for coder #2 includes: TMS = .93; CLS = .91; TVI = .95; TCS = .95; AG = .93. The coders were asked to choose the most salient behaviors observed in the TMS and CLS and obtained 100% agreement.

## Conclusion

Reid Hartman, (1982) maintains that the interpretation of reliability statistics should range from .70 (acceptable) to .90. The reliability obtained from this instrument ranged towards the higher end of the continuum. It appears that the observation portion of the instrument, although in its beginning stages, may prove useful for early childhood educators. A strong recommendation is made to include a comprehensive approach and that further instrument refinement and statistical manipulation be conducted. Validity needs to be established as a next step.

In order to continue to search for an ecological approach of observing early childhood educators it is recommended that observation of teachers in other settings who use a variety of approaches be pursued and that the instrument be compared with the Florida Performance Measurement System and any other measures attempting to assess the effectiveness of early childhood teaching. The importance of the study is in keeping with Gordon and Jester's (1973) suggestion that we continue to "increase our knowledge of the nature of preschool teaching and learning and its effects upon the child."

Table 1

DEVELOPMENTALLY APPROPRIATE TEACHING TECHNIQUES
Lourdes Diaz Soto, Cristina Fernandez, and Patricia Cantieri

CODERS GUIDE

large group instruction small groups individual instruction

**Teacher Management Strategies**
1. Directs-decides-does=stands in front of room, lectures
2. Participates=is directly involved in hands-on activities with children
3. Moves about=circulates from one group or child to another
4. Eye level=sits or kneels at the child's eye level
5. Demonstrates=shows children a procedure
6. Names=specific child's name used in conversation or greeting
7. Praise=recognizes children's accomplishments

**Children's Learning Strategies**
1. Explore=children select from a variety of activities, moves about the room freely, actively involved
2. Sit, watch, and listen=children at desks/tables/chairs
3. Concrete experiences=manipulate objects, involved in hands-on activities, real objects or people
4. Abstract experiences=workbook ditto sheets, paper and pencil activities, rote counting, one letter at a time
5. Demonstrates=one child or small group of children demonstrate to whole group, role playing

**Types of Verbal Interactions**
1. Teacher initiates
2. Child initiates
3. Teacher responds
4. Child responds
5. Children talk to each other
6. Teacher observes silently
7. Children observe
8. Choral speaking/singing
9. Other

***Teacher Communication Strategies**
1. Teacher self talk
2. Parallel talk
3. Repeats child's statement
4. Restates and corrects child's ideas
5. Expands and extends
6. Open-ended questions/stimulates child to articulate (what if...)
7. Gives directions/information

**Affective Guidance**
1. Labels feelings
2. Asks child for alternate solution
3. Redirects
4. Models desired behavior
5. Time out/removes
6. Restrains
7. Negative statements

*Adapted from Weikart's (1987) staff development approaches.

## Appendix I

## Observation Form

## Developmentally Appropriate Teaching Techniques

Student's Name _____

Date _____

Time _____

Location _____

large group instruction small groups individual instruction

Teacher Management Strategies

1.
2.
3.
4.
5.
6.
7.

Children's Learning Strategies

1.
2.
3.
4.
5.

Types of Verbal Interactions

1.
2.
3.
4.
5.
6.
7.
8.
9.

Teacher Communication Strategies

1.
2.
3.
4.
5.
6.
7.
8.
9.

Affective Guidance

1.
2.
3.
4.
5.
6.
7.

Appendix II

SAMPLE TEACHER INFORMATION SHEET

_____
Date

_____ _____
Name School

Number of years teaching in early childhood settings _____

_____ _____ _____
University/College attended Location Degree

_____ _____ _____

Specialization: Early Childhood Elementary Education Specify Other

List and describe your job related experiences with young children:

List any other experiences with young children:

Professional courses, activities attended within the past two years:

_____ _____
Course work

_____ _____
Lectures/Seminars

_____ _____
Current Reading

List the educational research or educator that has greatly influenced your philosophy of Early Childhood education:

## Appendix III

### Classroom Environment

Observer: _____ Observation Date: _____

Classroom Observed: _____

Total Number Children: _____ Total Number Adults: _____

A. Number of activities: _____ Average group size: _____
B. Specify activities: (Worksheets - math; grouping seeds; math; planting seeds - science; etc.)

a.

b.

c.

d.

e.

f.

C. Is the space divided into centers: _____ Yes _____ No
D. Are there clear pathways? _____Yes _____ No
E. Are areas easily supervised by adults? _____ Yes _____No
F. Materials are organized on open low shelves? _____ Yes _____No
G. Wall decorations at children's eye level? _____Yes _____No
H. Children's work displayed in the classroom? _____Yes _____No
I. Individual space provided for children? _____Yes _____No
J. Is there dead space (space not utilized)? _____Yes _____No
K. Enough usable space not overcrowded? _____Yes _____No
Classroom size: _____
L. Classroom appears clean, bright, and orderly? _____Yes _____No
M. Chairs and tables are child-sizes? _____Yes _____No
N. Outline drawing of classroom arrangement (indicate furniture, learning centers, pathways, etc.)

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